

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 August 2005 (25.08.2005)

PCT

(10) International Publication Number  
**WO 2005/078098 A1**

(51) International Patent Classification<sup>7</sup>: C12N 15/12,  
15/90, 15/63

NUTT, Stephen, Laurence [AU/AU]; 16 Mirams Street,  
Ascot Vale, VIC 3032 (AU).

(21) International Application Number:  
PCT/AU2005/000168

(74) Agents: HUGHES, E., John, L. et al.; Davies Collison  
Cave, 1 Nicholson Street, Melbourne, VIC 3000 (AU).

(22) International Filing Date: 11 February 2005 (11.02.2005)

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
AU 2004900673 12 February 2004 (12.02.2004) AU

(71) Applicant (*for all designated States except US*): THE  
WALTER AND ELIZA HALL INSTITUTE OF MED-  
ICAL RESEARCH [AU/AU]; Royal Parade, Parkville,  
VIC 3052 (AU).

(84) Designated States (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): KALLIES, Axel  
[DE/AU]; 11/14 Robe Street, St Kilda, VIC 3182 (AU).  
HASBOLD, Jhagvaral [AU/AU]; 3/10 Thea Avenue,  
North Balwyn, VIC 3104 (AU). TARLINTON, David  
[AU/AU]; 28 Kerr Street, Blackburn, VIC 3130 (AU).  
CORCORAN, Lynn [AU/AU]; 180 Kilby Road, East  
Kew, VIC 3102 (AU). HODGKIN, Philip, Desmond  
[AU/AU]; 50 The Avenue, Coburg, VIC 3058 (AU).

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: MODIFIED CELLS THAT CO-EXPRESS BLIMP1 AND A REPORTER MOLECULE AND METHODS OF USING  
THE SAME

(57) Abstract: In one aspect, the present invention provides a genetically modified cell or non-human organism comprising such cells comprising modified genetic material which when expressed produces a polypeptide co-expressed with a reporter molecule and wherein the polypeptide is associated with terminal differentiation of a haematopoietic cell. Preferably, the genetic material gene is a *Blimp* allele or a part, fragment or functional form thereof. Furthermore, the identification of the reporter molecule in B-cell lineage cells indicates that such cells are committed to differentiate or have differentiated into ASC. Alternatively, reporter molecule activity in cells of a T cell lineage indicates that these cells are activated. Thus, as described herein, the presence of Blimp in a lymphocyte indicates that the cell is terminally differentiated or is committed to terminal differentiation. Exemplary T-cells include CD4<sup>+</sup> T-cells and CD8<sup>+</sup> T-cells and exemplary B-cells are ASC.



WO 2005/078098 A1